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Hydrophilic nonwoven fabric as absorption articles e.g. diaper, has preset initial stage hydrophilicity, durable hydrophilicity and proportion of polyolefin in circumference length of hydrophobic fiber cross section

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Abstract (Basic): JP 2002069812 A

NOVELTY - Hydrophilic nonwoven fabric has hydrophilic fiber formed by hydrophilization of hydrophobic fiber (HF) with fiber process agent. The fabric has initial stage hydrophilicity of 50 seconds or less, and durable hydrophilicity after 1 month preservation at 40degreesC under 80% relative humidity, of 5 times or more. Proportion of polyolefin occupied in whole-circumference length of HF fiber cross section is 30% or more.

DETAILED DESCRIPTION - The hydrophilic nonwoven fabric contains a hydrophilic fiber formed by hydrophilization treatment of hydrophobic fiber using fiber process agent. The fiber process agent contains 15-95 weight% (wt.%) of polyether polyester block copolymer (A) and/or higher alkyl ester of polyoxyalkylene glycol (B) having polyoxyethylene unit, based on active ingredient of the fiber process agent, and 0.05-5 wt.% of alkenyl succinic acid metallic salt (C). The copolymer (A) comprises a polyether block comprising polyoxyalkylene unit, and polyester block comprising a polyoxycaproyl unit. The fabric has initial stage hydrophilicity of 50 seconds or less, and durable hydrophilicity after 1 month preservation at 40degreesC under 80% RH of 5 times or more. The proportion of polyolefin occupied in whole-circumference length of fiber cross section of the hydrophobic fiber of 30% or more. The initial stage hydrophilicity is measured as follows: No.101 filter paper having diameter of 5.5 cm is overlapped on the hydrophilic nonwoven fabric. The filter paper and nonwoven fabric are fixed with clamp in a pair of glass-made cylinder with a diameter of 35 mm through rubber packing from the upper and lower sides. 40 g of ion exchange water is supplied to the upper cylinder and passed through the filter paper and the hydrophilic nonwoven fabric, and then collected on the lower cylinder. The amount of water collected on the lower cylinder is set to 20 g. The duration from the time of water supply initiation to collection of water on the lower cylinder is measured and set as initial-stage hydrophilicity of the hydrophilic nonwoven fabric. The durable hydrophilicity is measured as follows: A filter paper having diameter of 5.5 cm is overlapped on the hydrophilic nonwoven fabric. The filter paper and nonwoven fabric are fixed with clamp in a pair of glass-made cylinder with a diameter of 35 mm through rubber packing

from the upper and lower sides. 40 g of ion exchange water is supplied to the upper cylinder and passed through the filter paper and the hydrophilic nonwoven fabric, and then collected on the lower cylinder. The amount of water collected on the lower cylinder is set to 20 g. The duration from the time of water supply initiation to collection of water on the lower cylinder, is measured. The hydrophilic nonwoven fabric is taken out, if the duration is 180 seconds or less. Similar measurement is performed repeatedly after carrying out dry removal of the ion exchange water currently included. A frequency of measurement is set as times in a point of 180 seconds or more when the duration is n times. The frequency of measurement of time (n-1) is set as durable hydrophilicity.

USE - As hydrophilic fiber for absorption articles such as disposable diaper, surface seat, back-side seat.

ADVANTAGE - The nonwoven fabric has high hydrophilic property and durability, and is suitable as absorption articles such as disposable diaper. The nonwoven fabric is preserved at high temperature and humidity conditions for long period of time.

DESCRIPTION OF DRAWING(S) - The figure shows the perspective view of a disposable diaper.

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